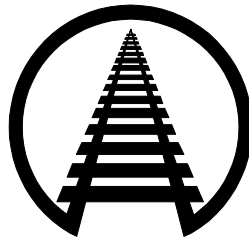


STATEMENT OF
EDWARD R. HAMBERGER
PRESIDENT & CHIEF EXECUTIVE OFFICER
ASSOCIATION OF AMERICAN RAILROADS



BEFORE THE
U.S. HOUSE OF REPRESENTATIVES
COMMITTEE ON TRANSPORTATION AND INFRASTRUCTURE
SUBCOMMITTEE ON RAILROADS

HEARING ON CURRENT
FEDERAL RAILROAD ADMINISTRATION
SAFETY INITIATIVES

JUNE 27, 2006

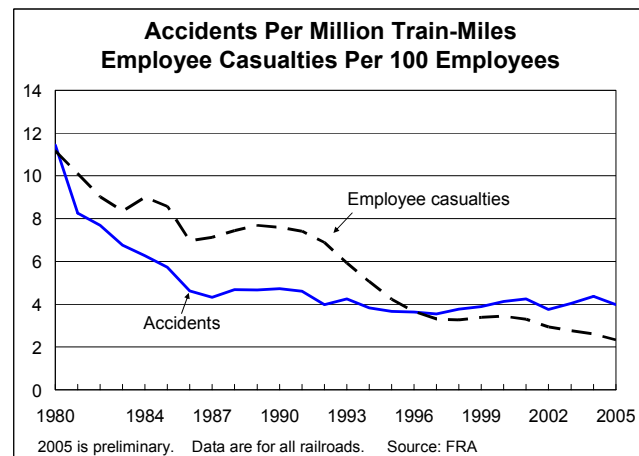
Introduction

On behalf of the members of the Association of American Railroads (AAR), thank you for the opportunity to address Federal Railroad Administration (FRA) safety initiatives. AAR members account for the vast majority of freight railroad mileage, employees, and traffic in Canada, Mexico, and the United States.

First and foremost, it is important to stress that nothing is more important to railroads than the safety of their employees, their customers, and the communities they serve. Through massive investments in safety-enhancing infrastructure and technology; employee training; cooperative efforts with labor, suppliers, customers, communities, and the FRA; cutting-edge research and development; and steadfast commitment to applicable laws and regulations, railroads are at the forefront of advancing safety.

The overall railroad industry safety record is excellent, reflecting the extraordinary importance railroads place on safety.

Since 1980, railroads reduced their overall train accident rate by 65 percent and their rate of employee casualties by 79 percent. In 2005, in fact, the employee casualty rate was the lowest in history. Railroads have lower employee injury rates than other



modes of transportation and most other major industry groups, including agriculture, construction, manufacturing, and private industry as a whole. U.S. railroads also have employee injury rates well below those of most major European railroads. And when they do happen, railroad injuries are no more severe than injuries in U.S. industry as a whole.

Railroads are also far safer than trucks. Rail freight transportation incurs less than one-fifth the fatalities that intercity motor carriers do per billion ton-miles of freight moved.

In May 2005, the FRA released its “Action Plan for Addressing Critical

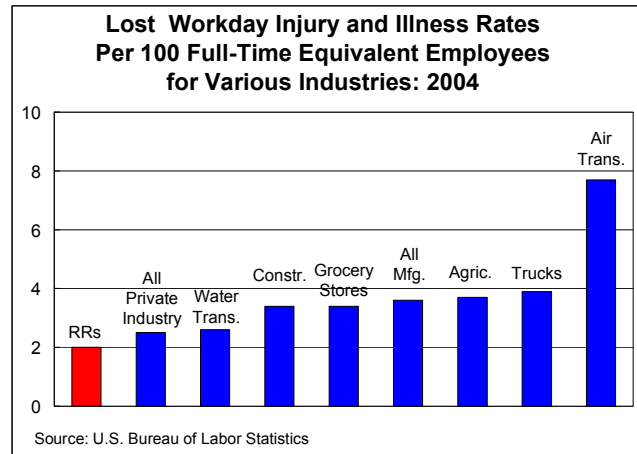
Railroad Safety Issues” (Action Plan). The Action Plan includes initiatives in six areas: human factor-caused train accidents; fatigue; track safety; hazardous materials safety; the use of accident and inspection data to gauge compliance with FRA regulations; and highway-rail grade crossing safety. Each of these areas is addressed below.

Human Factors

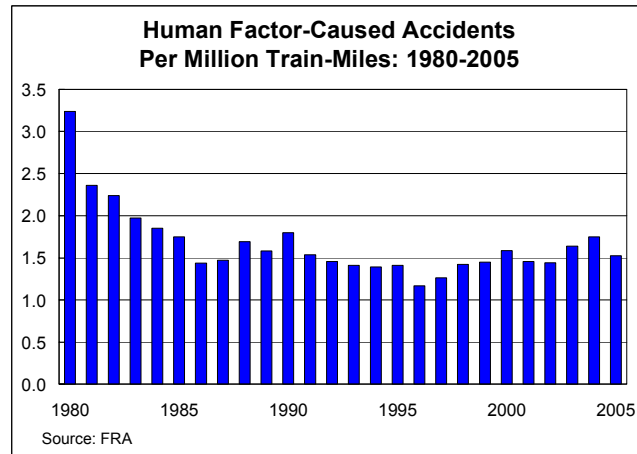
According to FRA data, human factors (*i.e.*, human errors) constitute the largest category of train accidents, accounting for 38 percent of all train accidents from 2001-2005.

Given the extent and complexity of rail operations — the railroad “factory floor” is outdoors and more than 140,000 miles long — some rail accidents are bound to occur. And while railroads respect and applaud the professionalism and attention to safety that rail employees bring every day to their jobs, employees will sometimes make mistakes. However, railroads share FRA’s goal of finding ways to make those mistakes as rare as possible.

The Action Plan states that human factor-caused accidents are increasing. While the absolute number of accidents classified as caused by human factors has risen over the past decade, the rate per million train-miles has stayed relatively constant, and in 2005 was 53 percent lower than it was in 1980. In addition, most of the increase in human factor-caused accidents over the past decade has been low-speed yard accidents, which incur substantially



lower damage and casualties. In fact, the rate of human factors-caused accidents involving freight trains on main and siding track in 2005 was 75 percent below its 1980 level, 46 percent below its level in 1990, and only 16 percent above its all-time low in 1999.



Nevertheless, railroads agree that they, rail labor, and the FRA must continue to try to reduce the frequency of human factor-caused accidents.

According to the Action Plan, the three leading causes of human factor-caused accidents that are not covered by existing FRA regulations tend to be switching related — *i.e.*, track switches that are improperly “lined,” or set; shoving cars without a person at the front to monitor conditions ahead; and leaving rail cars in a position that obstructs a track.

Although each of these mistakes is covered by individual railroads’ operating rules (and thus are cause for disciplinary action if violated), the FRA believes that federal operating rules should address them. Consequently, the FRA asked the Rail Safety Advisory Committee¹ (RSAC) to convene a task force to address switches, shoving cars, and leaving cars in a position that obstructs a track. The AAR agreed to the formation of the task force. As an interim measure, on October 19, 2005, the FRA promulgated Emergency Order No. 24 (EO-24), which addressed procedures for ensuring that switches are properly lined.

¹ RSAC is an advisory committee established in 1996 to address the need for a more collaborative approach to FRA safety regulation. It is composed of representatives from all facets of the rail industry and is chaired by the FRA Associate Administrator for Safety.

After reaching agreement on most issues, the RSAC task force concluded its work in February 2006. The task force's work should provide the FRA with a solid foundation for the next major step in the process — drafting a proposed rule — which the rail industry expects to be released in the next few months.

Among other issues, the RSAC task force addressed the following:

- Employee training
- Ensuring that railroad officers who are responsible for assessing the qualifications of railroad employees are sufficiently trained
- Periodic railroad reviews of accidents and incidents to ensure testing programs are addressing the appropriate subjects
- Requiring rail employees to determine visually that the track is clear when conducting shoving or pushing movements (with certain limited exceptions)
- Prohibiting leaving equipment in a position that obstructs connecting track (again with certain limited exceptions)
- Requiring switches to be left in their proper position when not in use
- Requiring derails² to be locked in the derailling position
- Prohibiting trains from moving onto track until switches and derails are in the proper position
- Communications regarding hand-operated switches in non-signaled territory
- Job briefings concerning the operation of hand-operated switches for employees in non-signaled territory

The Action Plan also discussed the implementation of a pilot program to collect data on “close calls” — *i.e.*, unsafe events that do not result in a reportable accident, but had the potential to. The existing accident reporting system does not capture data on close calls. Theoretically, if such information were collected, railroads might be able to use it to identify safety hazards and reduce future incidents. Similar systems are used in aviation and on some overseas railroads. According to the FRA, in other industries the implementation of a close-

² A derail is a track safety device that guides a freight car off the rails at a selected spot. It is commonly used on spurs or sidings to prevent freight cars from extending onto a main line.

call reporting system that shields reporting employees from discipline, and their employers from punitive sanctions levied by the regulator, has led to significant reductions in accidents.

The AAR and rail labor are working with the FRA to develop a model close-call program suitable for voluntary adoption by individual railroads. As part of this initiative, Union Pacific is expected to begin the first pilot of a close-call reporting system at one of its terminals in the near future.

Train Control Technology

Several major railroads are now developing and testing train control systems that can prevent accidents by automatically stopping or slowing trains before they encounter a dangerous situation. Through predictive enforcement, train control technologies, in certain circumstances, could significantly reduce the incidence of human error-caused train accidents, especially train collisions and derailments due to excessive speed.

Train control systems are extremely complex. At a minimum, they must include reliable technology to inform dispatchers and operators of a train's precise location; a means to warn operators of actual or potential problems (*e.g.*, excessive speed); and a means to take action, if necessary, independent of the train operator (*e.g.*, stop a train before it reaches the physical limits of its operating authority). Some systems will also include additional features, such as expanding the ability to monitor the position of hand-operated switches. Perhaps the most critical element is sophisticated software capable of accommodating all of the variables associated with rail operations. When successfully implemented, these enhanced train control capabilities will enable trains to operate more safely than trains operate today.

Several major railroads are engaged in various projects to test elements of this new technology. For example, one railroad has done extensive and successful pilot testing in

Illinois and is about to expand its version of train control (Electronic Train Management System – ETMS) on a second rail corridor between Texas and Kansas. The railroad is awaiting final approval from the FRA on the technology in order to fully implement it.

Implementing train control technology will require massive capital investments in wireless networks; sophisticated location determination systems; highly reliable software; and digital processors on board locomotives, in dispatching offices and, for some systems, along tracks. Most major railroads intend to install train control systems and use any related productivity gains to help offset their cost.

Fatigue

Railroads and employees are continuing their long-standing and varied efforts to gain a better understanding of fatigue-related issues and find effective, innovative solutions. Scientific research to date suggests that flexibility to tailor fatigue management efforts to address local circumstances is key to the success of these programs. Significant variations associated with local operations (*e.g.*, types of trains, traffic balance, and geography), local labor agreements, and other factors require customized measures. Consequently, a one-size-fits-all government approach is unlikely to succeed as well as cooperative efforts tailored to individual railroads.

Railroads recognize that combating fatigue is a shared responsibility. Employers need to provide an environment that allows the employee to obtain necessary rest during off-duty hours, and employees must set aside time when off duty to obtain the rest they need.

Consequently, since 1992, the AAR, the Brotherhood of Locomotive Engineers, and the United Transportation Union have addressed fatigue through the Work/Rest Task Force. The Task Force members share information about fatigue countermeasures. Periodically, the

Task Force publishes a compendium of railroad initiatives. A revised compendium is currently being prepared.

Recognizing that some employees with sleep disorders may be reluctant to come forward for treatment for fear of their livelihood, last year railroads and labor produced and circulated a statement saying that a sleep disorder will be addressed no differently than any other medical condition that might affect job performance — namely, individual evaluation by medical professionals for diagnosis and treatment.

Different railroads employ different fatigue countermeasures, or the same countermeasures in different ways, based on what they've found to be most effective. A list of countermeasures — at least some of which can be found on every major railroad — includes:

- Changes in work schedules (*e.g.*, assigned work and rest days)
- Developing scheduling alternatives in cooperation with labor
- Permitting napping by train crew members under limited circumstances (*e.g.*, when a train is expected to remain motionless for a minimum period of time)
- Sleep disorder screening
- Enhanced emphasis on returning crews home rather than lodging them away from home
- Standards for lodging at away-from-home facilities
- Running more scheduled trains and groups of trains
- Providing more predictable calling windows and minimal times between shifts
- Proactive notification (cell phone, pager, PDA)

Many railroads also offer fatigue education programs for employees and their families, including individualized coaching to assist employees in improving their sleep habits. The importance of education in this area cannot be overstated, since the value of fatigue-related initiatives is highly dependent upon the actions of employees while off duty. An educational website designed solely for railroads and railroad employees is under development by the AAR in partnership with the American Short Line and Regional Railroad Association and the

American Public Transportation Association, and is expected to be available later this year. Content will be supervised by an internationally-recognized panel of experts and will include information on good sleep practices, sleep disorders, and fatigue countermeasures, as well as other resources.

The FRA also is addressing work/rest issues. For example, it is attempting to develop a fatigue model that could be used to improve crew scheduling. Railroads are cooperating in this project by supplying work-schedule data for their employees. If successful, the model might be used to develop improved scheduling practices based on aggregate data. The FRA is also investigating, with railroad cooperation, the use of wristwatch-like devices known as “actigraphs” to help measure the effect of schedules and educational efforts on sleep patterns.

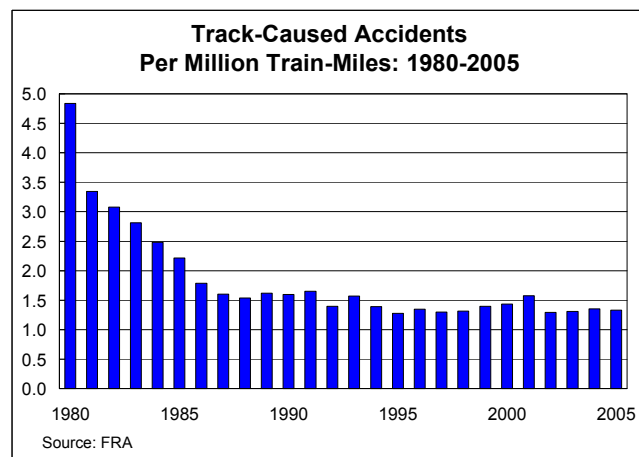
Track Safety

The condition of track is a key component of railroad safety. A principal reason why the railroads’ safety record has improved dramatically since 1980 is the significant reduction in track-caused accidents, which are down 72 percent on a train-mile basis since 1980.

However, track problems remain a leading cause of accidents (34 percent of the 2001-2005 total), and the rail industry is committed to reducing their occurrence.

One area being addressed by the FRA is broken joint bars. Work by an RSAC task force on joint bars in continuous welded rail (CWR) has just

come to a consensus on inspection criteria. The regulations will address the frequency with which CWR joints are inspected (which will depend on track class, the annual tonnage of



traffic, and whether there is passenger traffic) and the recording of defects. In addition, AAR will collect data for the FRA that the U.S. Department of Transportation's (DOT) Volpe Center can use as part of its efforts to analyze joint bar failures.

At a very basic level, railroading today is similar to railroading long ago: it still consists of steel wheels traveling on steel rails, with one or more locomotives pulling a string of cars. This surface similarity, however, masks a widespread application of modern technology and a huge variety of ongoing initiatives to research, test, and apply advanced technologies to promote a safer railroad environment.

Much of this new technology has been or is being developed and/or refined at the Transportation Technology Center, Inc. (TTCI) in Pueblo, Colorado. A wholly-owned subsidiary of the AAR, TTCI is the finest railroad research facility in the world. Its 48 miles of test tracks, highly sophisticated testing equipment, metallurgy labs, simulators, and other diagnostic tools are used to test track structure and vehicle performance, evaluate component reliability, and more. The facility is owned by the FRA, but has been operated by TTCI — which is responsible for all of its operating costs and some capital costs — since 1984. The rail industry is pleased that members of this committee have twice had the opportunity to see TTCI firsthand.

Many of these technological advances — some of which are in widespread use and some of which are still under development — are part of the rail industry's Advanced Technology Safety Initiative (ATSI). ATSI is a maintenance system designed to detect and report potential safety problems and poorly performing equipment *before* problems occur. Many advances are also related to the industry's Technology-Driven Train Inspection (TDTI) program, which focuses on developing high technology train inspection capabilities.

Just a few of the many technological advances important to track and equipment safety are described below:

Track and Infrastructure

- *Advanced track geometry cars*, which combine sophisticated electronic and optical instruments, are used routinely to inspect track conditions, including alignment, gauge, and curvature. TTCI is developing an on-board computer system that provides a more analytically-advanced capability of assessing track geometry by predicting the response of freight cars to deviations in track geometry. This information will better enable railroads to determine track maintenance needs and help improve the safety of day-to-day rail operations.
- *Improved metallurgy* and *premium fastening systems* have enhanced the stability of track geometry, reducing the risk of track failure leading to derailments.
- Research is continuing in the development of *designs, materials, and maintenance techniques* for improving the performance of specialized track components used in heavy haul railroading — for example, “frogs” and “diamonds” (track structures used where two rail lines intersect that permit wheels to cross the intersecting rail) and where sections of rail meet.
- *Rail defect detector cars* are used to detect internal rail flaws. The AAR and the FRA have jointly funded a Rail Defect Test Facility at TTCI that railroads and suppliers can use to test improved methods for detecting rail flaws. In 2005, the capabilities of a prototype of the world’s first laser-based rail inspection system were tested at TTCI; the system will be demonstrated in actual revenue service later this year.
- *Ground-penetrating radar* and *terrain conductivity sensors* are being developed that will help identify problems below the ground (such as excessive water penetration and deteriorated ballast) that hinder track stability.
- Improved *track lubrication* techniques, including the use of environmentally-friendly soybean-based lubricants, are being introduced to reduce fuel costs and extend rail life.
- Much of the research underway regarding track and infrastructure is related to *heavy-axle load* (HAL) service, which entails the use of heavier (and often longer) trains. HAL-related work is underway on rail steels, insulated joints, bridges, welding, and more.

Freight Car and Locomotive Wheels

- *Wayside detectors* identify defects on passing rail cars — including overheated bearings and wheels, dragging hoses, deteriorating bearings, cracked axles and wheels, and excessively high and wide loads — before structural failure or other damage occurs.

Some of the newest wayside detectors being developed use *machine vision* to perform higher-accuracy inspections through the use of digitized images, which are then analyzed using computer algorithms. Tests at TTCI last year revealed that it is possible to inspect wheels of moving trains using *ultrasonic probes* and detection algorithms. Further tests of this system are underway, as are tests on ways to better understand and prevent *axle fatigue*.

- *Wheel profile monitors* use lasers and optics to capture images of wheels. The images reveal if wheel tread or flanges are worn and, consequently, when the wheels need to be removed from service before they become a problem.
- Trackside *acoustic detector systems* use “acoustic signatures” to evaluate the sound of internal bearings to identify those likely to fail soon. These systems supplement or replace existing systems that identify bearings already in the process of failing by measuring the heat they generate. This technology allows bearings to be replaced before they overheat and fail.
- Wheels constructed with stronger *micro-alloyed metals* that resist damage and withstand higher service loads are being developed.

Locomotives and Freight Cars

- Advanced *fault detection systems* monitor critical functions on locomotives. State-of-the-art locomotives today can have 20 or more sophisticated microprocessors that monitor and control various subsystems, constantly measuring and checking up to several thousand characteristics of the locomotive and its operation.
- Major U.S. railroads are deploying *remote control locomotive technology* (RCL) to improve rail safety. In use for many years on Canadian and smaller U.S. railroads, RCL allows rail personnel on the ground to operate and control locomotives in rail yards through the use of a hand-held transmitter that sends signals to a microprocessor on board a locomotive.
- Because a relatively small percentage of freight cars (so-called “bad actors”) can cause an inordinately high percentage of track damage and have a much higher than typical propensity for derailment, TTCI is working on ways to identify poorly performing freight cars as they pass across *truck performance detectors* and *hunting detectors*.³
- *Tank car enhancements* have helped railroads reduce the overall rail hazardous materials accident rate by 89 percent since 1980 and by 40 percent since 1990.

³ In terms of rail cars, “truck” refers to the complete four-wheel assembly that supports the freight car body. “Hunting” is an instability, more prevalent at higher speeds, that causes a rail car to weave down a track, usually with the flange of the wheel striking the rail.

Computers and Communication Systems

- Railroads are constantly expanding their use of state-of-the-art global positioning systems, wireless technologies, and other *communications advances* in a wide variety of rail applications.

For example, the Integrated Railway Remote Information Service (InteRRIS), which is under development at TTCI, is an Internet-based data collection system with broad potential applicability. An early project using InteRRIS collects data from wheel impact detector systems (which identify wheel defects by measuring the force generated by wheels on tracks) and detectors that monitor the undercarriage of rail cars (which identify suspension systems that are not performing properly on curves) along railroad rights-of-way. InteRRIS processes the information to produce vehicle condition reports. This will allow equipment which is approaching an unsafe condition to be removed from service and repaired before an accident occurs.

This technology (and others) have been incorporated in the industry's Advanced Technology Safety Initiative mentioned earlier. ATSI has already improved safety. Preliminary data indicate that the rate of main track broken rail and broken wheel accidents per million freight train-miles in the 18 months following the October 2004 implementation of ATSI was 15 percent below that of the 18-month period beginning two years prior to implementation. That's equivalent to a reduction of 46 potentially serious main track accidents nationwide over the more recent 18-month period.

- Advanced *computer modeling software* is being used in a huge variety of rail applications, from automating rail grinding schedules and demand forecasting to construction sequencing and operations simulation.

TTCI also supports three affiliated laboratory programs at Virginia Tech, Texas A&M University, and the University of Illinois. Through these programs, the rail industry monitors technological developments outside the railroad industry, evaluates their suitability to railroads, and supports them towards implementation. TTCI also participates in extensive partnership programs in global railway research to identify and evaluate technologies outside the domestic railway industry.

Hazardous Materials and Emergency Response

On June 13, 2006, I testified before this committee on the transportation of hazardous materials (hazmat) by rail. I will just summarize that testimony here.

The current environment for the rail transportation of highly-hazardous materials, especially “toxic inhalation hazards (TIH),” is untenable. The federal government today, through railroads’ common carrier obligation, requires railroads to transport these shipments, whether they want to carry them or not. Every time a railroad moves one of these shipments, though, it faces potentially ruinous liability. The insurance industry is unwilling to insure railroads against the multi-billion-dollar risks associated with highly-hazardous shipments.

Railroads face these huge risks for a tiny fraction of their business — shipments of TIH, for example, constitute only about 0.3 percent of all rail carloads (and contribute some 50 percent to the overall cost of railroad insurance). Accidents involving highly-hazardous materials on railroads are exceedingly rare. Still, history demonstrates that railroads can suffer multi-billion-dollar judgments, even for accidents where no one gets hurt and the railroads do nothing wrong.

If policymakers are to require railroads to transport highly-hazardous materials, they must limit railroads’ liability in the event of an accident. If railroads’ risks are not limited, railroads will be forced to seek an elimination of their common carrier obligation to carry this traffic, or to challenge its applicability with regard to TIH and other highly-hazardous materials.

In the meantime, railroads support prompt, bold actions by all stakeholders to further reduce the risks associated with the manufacture, transport, and use of highly-hazardous materials. Risk-reducing actions that should be pursued include accelerating the development and use of inherently-safer products and technologies as substitutes for highly-hazardous materials; developing and introducing safer tank cars; examining whether and how railroads can use coordinated routing arrangements to safely reduce hazmat transportation; and examining whether hazmat consumers can use “market swaps” to source hazmat from closer suppliers.

Railroads are committed to working with the FRA and others to enhance hazmat safety.

The FRA Compliance Program

According to the FRA Action Plan, the DOT Office of Inspector General “has recommended that FRA submit...a comprehensive plan for implementing a program that makes meaningful use of available data to focus inspection activities, assess whether traditional enforcement techniques should be substituted for a partnership approach, and determine appropriate fines where warranted.”

In response, the FRA is continuing the development of a new national inspection plan process. As I noted at the beginning of this testimony, railroads believe that steadfast commitment to applicable laws and regulations is a critical part of rail safety efforts. Thus, AAR’s members are committed to safe operations, including compliance with FRA regulations.

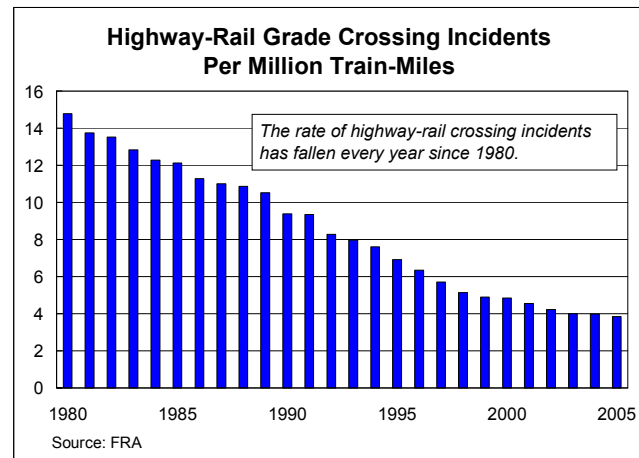
It is necessary and appropriate for the FRA to focus its efforts on the biggest safety problems, and if better examination of data will lead to better priorities, railroads support that examination. I caution, however, that railroads already have strong incentives to improve safety and reduce the costs of injuries and accidents. They and their employees are in the best position to know how to do this. Thus, cooperative efforts based on performance standards are far more likely to actually improve safety than a top-down, overly prescriptive approach.

Highway-Rail Grade Crossings

On July 21, 2005, I testified before this committee on grade crossing safety. In that testimony, I noted that collisions at grade crossings, along with incidents involving trespassers on railroad rights-of-way, are critical safety problems. In 2005, these two categories accounted for 93 percent of rail-related fatalities. Although these incidents usually arise from factors that are largely outside of railroad control, and even though highway-rail crossing

warning devices are properly considered motor vehicle warning devices there for the benefit of motorists, not trains, railroads are committed to efforts aimed at further reducing the frequency of crossing and trespasser incidents.

Much success has already been achieved. The rate of grade-crossing collisions fell 74 percent from 1980 through 2005, while the number of grade-crossing fatalities has fallen 57 percent over the same period. In fact, the rate of highway-rail grade crossing incidents has fallen every year since 1980.



Railroads continue to work hard to improve grade-crossing safety, including cooperating with state agencies to install and upgrade grade crossing warning devices and signals (and bearing the cost of maintaining those devices); helping to fund the closure of unneeded or redundant crossings; and supporting the national Operation Lifesaver grade crossing and pedestrian safety program. Details on these and other ways railroads are pursuing grade crossing safety are in my July 2005 testimony.

A recent initiative that will result in improved safety is the use of “stop” or “yield” signs along with crossbucks at grade crossings. The National Committee on Uniform Traffic Control Devices has recommended revising the Manual of Uniform Traffic Control Devices (MUTCD) to require the use of stop or yield signs in conjunction with crossbucks to make it clear what is expected of motorists at crossings. The AAR strongly supports amending the MUTCD as recommended by the National Committee and follow through on the installation of signs. AAR also supports FRA’s recommendation, included in its May 2006 report to

Congress on emergency notification systems for grade crossings, that signs comply with the MUTCD recommendations.

The report to Congress also recommended that Class I railroads continue their emergency notification programs, which provide the public with telephone numbers, posted at grade crossings, that can be called in the event of grade-crossing emergencies. AAR's member railroads, of course, will continue these programs.

To help further improve grade crossing safety, railroads urge the FRA to initiate active enforcement programs with local police agencies. For example, the FRA may wish to encourage video enforcement, and establish and fund a program for state and local law enforcement officers to serve in FRA's regional offices as liaisons for grade crossing and trespassing matters with state and local law enforcement organizations.

The Highway Safety Act of 1973 created and funded a national highway safety program, commonly referred to as the Section 130 program, specifically dedicated to crossing safety. Funds are apportioned to states each year for the installation of new active warning devices such as lights and gates, upgrading existing devices, and replacing or improving grade crossing surfaces. The Safe, Accountable, Flexible, and Efficient Transportation Equity Act – A Legacy for Users, which Congress passed in the summer of 2005, increased to at least \$220 million per year (from approximately \$155 million per year) the federal funding directed to the Section 130 program. The rail industry commends and thanks the members of this committee and others in Congress for their support of this critical program.

Conclusion

Thank you for the opportunity to present the railroads' perspective with respect to FRA safety initiatives. The railroad industry looks forward to working with Congress, the FRA, its customers, its employees, and others to ensure that rail safety continues to improve.